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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/499,229	02/07/2000	Toshio Nakakuki	2933SE-90	9948

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EXAMINER

HENN, TIMOTHY J

ART UNIT	PAPER NUMBER
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2612

DATE MAILED: 06/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/499,229

**Applicant(s)**

NAKAKUKI ET AL.

**Examiner**

Timothy J Henn

**Art Unit**

2612

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4,6 and 9 is/are rejected.
- 7) ☒ Claim(s) 2,3,5-8,10 and 11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 February 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Specification***

2. The amendment filed on April 28, 2004 overcomes the previous objections to the specification and title, these objections are therefore withdrawn.

### ***Response to Arguments***

3. Applicant's arguments filed on April 28, 2004 have been fully considered but they are not persuasive.

In the amendment filed on April 28, 2004 the applicants argue that Masanaga et al. (hereinafter referred to as Masanaga) does not disclose the selection of first exposure information or second exposure information based upon whether a level of the image signal is within a predetermined range and argues that Masanaga instead performs exposure control on the basis of the of a luminance difference between average luminance and spot luminance. While it is true that Masanaga performs exposure control on the basis of the difference between average and spot luminance signals, this is not true for all cases.

As can be seen from figure 5, Masanaga discloses an exposure control which uses different methods depending on whether an average luminance is within a

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predetermined range (i.e. a selection circuit; Figure 5, Step 52). If, in Masanaga, the average luminance is judged to be high (i.e. within the predetermined range) exposure control is made based upon the image signal including the difference between the average and spot luminance values (i.e. a second exposure circuit; Figure 5, Step 55; Column 7, Lines 10-49). On the other hand, if the average luminance is judged to be outside the predetermined range in figure 5, step 52 exposure control is based solely upon the average luminance in figure 5, step 59 (i.e. first exposure circuit). Although Masanaga discloses the use of the average exposure in the first exposure circuit, Masanaga does not disclose the specific nature of this exposure control, such as generating exposure information based upon whether or not the image signal is within the predetermined threshold.

However, exposure control of this type is well known in the art, one such example is disclosed by Mochizuki et al. (hereinafter referred to as Mochizuki). It would have been obvious to one skilled in the art to use well known exposure control techniques, such as the one disclosed in Mochizuki, as the average exposure control method of Masanaga (i.e. Figure 5, Step 59). Therefore, it can be seen that Masanaga in view of Mochizuki disclose all limitations of claim 1, specifically a solid-state image sensor (Masanaga Figure 1, Item 34); a driver (Masanaga Figure 1, Item 10), a first exposure information generating circuit (Masanaga Figure 5, Item 59; Mochizuki Figure 1); a second exposure information generating circuit (Masanaga Figure 5, Item 55); a selection circuit (Masanaga Figure 5, Item 52) and a timing control circuit (Masanaga

Figure 1, Item 10; Column 5, Lines 16-18). Accordingly, claims 1, 4, 6 and 9 remain rejected under 35 U.S.C. 103(a) over Masanaga in view of Mochizuki.

***Claim Rejections - 35 USC § 103***

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1, 4, 6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masanaga et al. (US 5,115,269) in view of Mochizuki et al. (US 5,793,422).

**[claim 1]**

In regard to claim 1, note that Masanaga et al. discloses a solid-state imaging apparatus comprising a solid-state imaging sensor for accumulating information charges corresponding to an image of an object and generating an image signal in response to the information charges (Figure 1, Items 33, 34 );

a driver, connected to the image sensor in accordance with a timing signal so that the information charges are accumulated in a predetermined exposure period, and for outputting the image signal from the image sensor (Figure 1, Item 10; The office notes that although Masanaga et al. does not specifically disclose the generation of timing signals, it is inherent that the image sensor is driven by various timing signals);

a first exposure information generating circuit for producing first exposure information (Figure 1, Items 10, 33 and Av; Figure 5, Item 59);

a second exposure information generating circuit for calculating second exposure information (Figure 1, Items 10, 33, 35, Av and Sp; Figure 5, Item 55);

a selection circuit, connected to the first and second exposure information generating circuits, for selecting the first exposure information when the level of the image signal is outside of the predetermined range (Figure 1, Item 10; Figure 5, Item 52; The office notes that the predetermined range of Masanaga et al. is defined as average luminance levels from the second threshold level to infinity);

and a timing control circuit, connected to the driver, for receiving the exposure information selected by the selection circuit and generating the timing signal therefrom, wherein the timing signal defines the predetermined exposure period (Figure 1, Item 10; The office notes that Masanaga et al. discloses that electronic shuttering processes can be used instead of a diaphragm, and that by using such a system the image sensor would be controlled by the control unit (Column 5, Lines 16-18)).

Therefore, it can be seen that Masanaga et al. lacks a first exposure information generating circuit, which produces first exposure information, based upon the determination results of whether a level of the image signal output from the image sensor is within a predetermined range.

It is noted that the exposure control of the first exposure section is "based upon the average luminance  $A_v$ ", but does not specifically disclose how it is performed. The office notes that exposure control based upon an average luminance is well known in the art, one such example is given in Mochizuki et al. (US 5,793,422). Mochizuki et al. teaches comparing an average luminance with a range, and altering the exposure time if the average luminance falls outside of that range (Figure 3). Mochizuki et al. teaches an exposure control system which uses determinations of whether or not a luminance

value is within a predetermined range, and adjusts the exposure time based on the determinations, this allows control of image intensity by changing the signal charge accumulation time (Column 18, Lines 52-54). Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the exposure control system of Mochizuki et al. as the "Average Photometering" process of Masanaga et al. to allow control of image intensity by changing the signal charge accumulation time.

It can further be seen that Masanaga et al. lacks first and second exposure generating circuits, which use image signals output from the image sensor to produce exposure information. Instead, Masanaga et al. uses a photometric device (Figure 1, Item 33; Column 3, Lines 54-58).

The office notes that it is well known in the art that separate photometric devices are not a requirement since luminance data can be taken from the image sensor itself, one such example of this can be found in Mochizuki et al. where average luminance information is obtained using the image sensor (Figure 1, Item 2), a sample and hold circuit (Figure 1, Item 3) and a low-pass filter (Figure 1, Item 9). Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to use data collected from the image sensor rather than a separate photometric device to reduce the number of components in the camera (Official Notice).

**[claim 4]**

In regard to claim 4, note that the exposure information generating circuit of Mochizuki et al. includes an exposure decision circuit for determining, every

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predetermined period, whether the level of the image signal output from the image sensor is within the predetermined range and generating a decision signal (Figure 4; Column 8, Lines 25-34); and

an up/down counter, connected to the exposure decision circuit, for performing an up count operation or a down count operation in accordance with the decision signal, and generating the first exposure information (Figure 4; Column 9, Lines 34-32).

**[claim 6]**

In regard to claim 6, although neither Masanaga et al. nor Mochizuki et al. specifically disclose drain and transfer pulses, the use of such pulses are well known in the electronic shuttering art. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to use drain and transfer pulses such as those claimed to drive the image sensor of Masanaga et al. in view of Mochizuki et al.

**[claim 9]**

Claim 9 is a method claim corresponding to apparatus claim 1. Therefore, claim 9 is analyzed and rejected as previously discussed with respect to claim 1.

***Allowable Subject Matter***

6. Claims 2, 3, 5, 7, 8, 10 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**[claims 2 and 3]**



In regard to claims 2 and 3, the prior art does not teach or fairly suggest a solid-state imaging apparatus including first and second exposure circuits in which the first exposure circuit determines whether a level of an image signal is within a predetermined range, where the predetermined range is defined by upper and lower limits.

**[claim 5]**

In regard to claim 5, the prior art does not teach or fairly suggest a solid-state imaging apparatus in which second exposure information is generated by a circuit which includes a timing calculation circuit for receiving the exposure information selected by a selection circuit and calculating second exposure information which specifies an optimum exposure time using the selected exposure information and the image signal.

**[claims 7, 8, 10 and 11]**

In regard to claims 7, 8, 10 and 11, the prior art does not teach or fairly suggest a solid-state imaging apparatus that generates a field during a vertical scan period and wherein the first exposure information generating circuit updates the first exposure information every vertical scan period.

***Conclusion***

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J Henn whose telephone number is (703) 305-8327. The examiner can normally be reached on M-F 7:30 AM - 5:00 PM, alternate Fridays off.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy R Garber can be reached on (703) 305-4929. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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TJH  
6/21/2004

  
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